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BEYER WEAVER & THOMAS LLP			PHAM, HUNG Q	
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DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/771,143

Applicant(s)

CRIM ET AL.

Examiner

HUNG Q. PHAM

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-15, 38-43 and 45-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15, 38-43 and 45-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/26/05 has been entered.

Response to Arguments

Applicant's arguments filed 09/26/2005 have been fully considered but they are not persuasive.

As argued by applicants:

- (a) *Bapat et al. does not teach a calculation expression, for controlling access to a database, that can be evaluated based on a state variable of a database (claims 14, 41 and 47).*
- (b) *Bapat et al. does not teach a calculation expression, for controlling access to a database, that can be evaluated based on a field of a record in the database (claims 11, 38 and 43).*
- (c) *Bapat et al. does not teach a calculation expression for controlling access to a database with can be evaluated to determine access (claims 11, 38 and 43).*

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- (d) *Bapat et al. and Elmasri taken alone, or properly combined do not teach or suggest defining a calculation expression for a password.*

Examiner respectfully disagrees because of the following reasons:

(a)

Granted Permissions Table for Table 1

1502	User Name	Object Name	Operation Type	1
	user_x	object_xyz	SELECT	
	user_x	object_qrs	UPDATE	
	user_y	object_xyz	SELECT	
	user_y	object_abc	DELETE	
	user_z	object_def	SELECT	
1510	group_a	object_hij	SELECT	
	group_z	object_jkl	SELECT	

The Granted Permissions Table above (FIG. 15, Col. 26, Lines 29-41) is defined by system administrator (Col. 26, Lines 18-19). Each row of the Granted Permissions Table is defined by a meaningful combination of characters or *expression* to specify a record access right for a user. A row in the Granted Permissions explicitly defines an access right of a user to a record in the database with its Fully Distinguished Name as a key is equal to the specified Fully Distinguished Name in the Granted Permissions Table. For example, based on the first row of the Granted Permissions Table, a User Name = user_x has Operation Type = delete on any record that has Object Name = object_xyz. As seen, each row expression in the Granted Permissions Table is a *calculation expression* with a plurality of implied EQUAL OPERATOR, and is evaluated by the FDN field of the record to determine the access right.

Applicants pointed examiner to a definition of the term “*state*” in Microsoft’s computer dictionary. However as recited in claims 14, 41 and 47, *calculation expression can be*

evaluated at least partly based on at least one state variable of said database, and in the Specification of the Application (Summary):

... the expression can be based on fields of the records as well as other information, for example, various state variables of the database (e.g., date, time, number of records, etc.)

In light of the specification, the *state variables* could be *date, time, number of records, etc.*

As further disclosed by Bapat at Col. 26, Lines 55-57 and 60-63, by convention, the permissions tables use a special object name value, such as a database NULL value to represent “all objects”. For a system with 5,000 managed objects, only one entry is required (Col. 27, Lines 30-36).

GRANT TABLE: (U1, NULL, Op1)

Thus, by using NULL variable, the *calculation expression* (U1, NULL, Op1) *can be evaluated based on a state variable of a database, e.g., NULL indicates 5,000 records.*

(b) As shown in FIG. 10, TABLE 310 is illustrated, wherein FDN is a field of data used in a plurality of records stored in database. As discussed above, each row expression in the Granted Permissions Table is a *calculation expression* with a plurality of implied EQUAL OPERATOR, and is *evaluated based on FDN as a field of a record in the database* to determine the access right.

(c) As discussed above, each row in the Granted Permissions Table explicitly defines an access right of a user to a record in the database with its Fully Distinguished Name is equal to the specified Fully Distinguished Name in the Granted Permissions

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Table. For example, based on a row of the Granted Permissions Table, a user_x can delete any record that has Object Name (FDN) = Record (FDN). As seen, each row expression in the Granted Permissions Table is *a mathematical process*, (Object Name (FDN) = Record (FDN), evaluated by the FDN field of the record to determine the access right.

(d) In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the process of assigning a password and identifying password is a conventional technique, which was used for security purpose, and password is a must for Bapat method and system in order to have a more secure database system.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 11 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As in claims 11, the clause *wherein said evaluating comprises determining at least one value for said at least one field of data and using said at least one value as input to said calculation expression* was not described in the specification.

As in claim 14, the clause *wherein said state variable can indicate the condition of an element of said database at a particular time* was not described in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-15 and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bapat et al. [USP 6,236,996 B1] in view of Elmasri et al. [Fundamentals of Database System].

Regarding claims 11 and 38, Bapat teaches a method and program for controlling managed objects. The method comprising:

defining a calculation expression, wherein said calculation expression is a variable expression defined based on at least one field of data used in a plurality of records stored in said database (As shown in FIG. 14, tables 310 and 320 as in FIG. 11A are stored in a conventional DBMS 280 (Col. 25, lines 49-50). Rows 311, 312, 321, 322 of the tables 310, 320 contain management information for managed objects (Col. 25, lines 60-61). The FDN operates as the primary key to the data stored in the table and to determine which managed objects that a particular user is permitted to access or modify (Col. 19, lines 36-40). Access control for a particular user on a particular managed object is defined by a permissions table as shown below (Col. 26, lines 10-12).

Granted Permissions Table for Table 1

1502	User Name	Object Name	Operation Type	1
	user_x	object_xyz	SELECT	
	user_x	object_qrs	UPDATE	
	user_y	object_xyz	SELECT	
	user_y	object_abc	DELETE	
	user_z	object_def	SELECT	
1510	group_a	object_hij	SELECT	
	group_z	object_jkl	SELECT	

A permission entry 1502 is tuple having three fields, user name, object name, and operation type. The object name, preferably, is the FDN or Full Distinguish Name for a managed object (Col. 26, Lines 28-33). Referring to FIG. 11A as shown below, each row in the database tables includes a field called the Fully Distinguished Name or FDN of a managed object followed by columns of data. For example, an FDN can look like /systemid="sys1"/owner="accompany"/devicetype="router" (Col. 19, Lines 24-35).

Row			
FDN	Data 1	...	Data N

As seen, each row of the Granted Permissions Table is defined by a meaningful combination of variable characters or *variable expression* to specify a record access right for a user, wherein each row in the Granted Permissions explicitly defines an access right of a user to a record in the database with its Fully Distinguished Name as a key is equal to the specified Fully Distinguished Name in the Granted Permissions Table. For example, based on the first row of the Granted Permissions Table, a User Name = user_x has Operation Type = delete on any record that has Object Name = object_xyz. Thus, each row expression in the Granted Permissions Table is a *calculation expression*

with a plurality of implied EQUAL OPERATOR, and is evaluated by the FDN field of the record to determine the access right) and

calculation expression can be evaluated at least partly based on said at least one field of data used in said plurality of records (Col. 28, Lines 1-3, the Grant table is checked to see if user has specific granted items, e.g., FDN, and as discussed above, FDN is *at least one field of data used in said plurality of records* of FIG. 11A),

wherein said at least one field of data is a variable which may have different values for each of said plurality of records (FIG. 10, tables 310 and 320, FDN field is *a variable which may have different values for each of said plurality of records*),

thereby allowing access to various field of data stored in said plurality of record to be selectively controlled (Col. 20, Lines 7-32, SELECT*, FROM view_table1_max WHERE FDN = "a/b/c", by using SELECT*, if FDN is matched with FDN in Grant table, the other fields as in tables 310 and 320 will be accessed, wherein the record is selectively controlled by FDN) and

wherein expression defines access privileges of said one or more users with respect to at least one operation that may be requested to be performed by said one or more users on said plurality of records of said database (FIG. 15 A and B).

When a user 300 issues an SQL command to access the DBMS 280 (Col. 22, lines 24-26, Col. 25, lines 65-67) for the status of all routers in the network or for information about a specified list of managed objects (Col. 28, lines 27-30) with an operation as specified in FIG. 15A as *receiving a request to perform said at least one operation on said plurality of records of said database, said request being identified as a request made by said one or more users associated with user name.*

Access Control is enforced by *evaluating* user name, object name and operation type as *said calculation expression for said each of said plurality of records, based on said at least one field of data, when said request has been received; said evaluation returning only one of two possible values for each of said plurality of records, one of said possible values indicating that said at least one operation should be granted and another one of said possible values indicating that said at least one operation should be denied; granting said at least one operation to be performed when said evaluation returns one said possible value to indicate that said at least one operation should be granted; and denying said at least one operation to be performed when said evaluation returns one said another possible value to indicate that said at least one operation should be denied* (Col. 27, line 45-Col. 28, line 26);

wherein said evaluating comprises determining at least one value for said at least one field of data and using said at least one value as input to said calculation expression (An SQL command is used to access management information in DBMS (Col. 25, Line 66-Col. 26, Lines 3). SQL is in the form SELECT FROM WHERE. WHERE clause is to specify a value of FDN (Col. 20, Lines 28-32), wherein FDN is used as the key that determines which managed objects the user is permitted to access (Col. 19, Lines 35-40). The Grant table is checked to see if user has specific granted items and grant access if matching (Col. 28, Lines 1-3). As seen, FDN value in SQL command as *at least one value for said at least one field of data* is determined in SQL command, and FDN value is used as input to compare with a particular row that has the same FDN value. In short, the technique of comparing FDN in SQL command with FDN in Grant table indicates the step *using said at least one value as input to said calculation expression*).

The missing of Bapat technique is the step *identifying a password that is associated with one or more users of said database*.

Elmasri teaches a method of protecting access to a database system by *identifying a password that is associated with one or more users of said database* (Elmasri, page 718).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the Bapat method by using a password to identify a user taught by Elmasri in order to have a more secure database system.

Regarding claims 12 and 39, and Bapat and Elmasri, in combination, teach all of the claimed subject matter as discussed above with respect to claims 11 and 38, Bapat further discloses *at least one operation can be a browse, an edit, or a delete operation* (FIG. 15A and B).

Regarding claims 13 and 40, Bapat and Elmasri, in combination, teach all of the claimed subject matter as discussed above with respect to claims 11 and 38, Bapat further discloses *calculation expression is not explicitly defined for said at least one operation but said calculation expression is one that has been defined for another operation which has been considered as a related operation to said at least one operation* (FIG. 15A).

Regarding claims 14 and 41, Bapat and Elmasri, in combination, teach all of the claimed subject matter as discussed above with respect to claims 11 and 38, Bapat further discloses *said calculation expression can be evaluated at least partly based on at least one state variable of said database, wherein said state variable can indicate the condition of an element of said database at a particular time* (As further disclosed by Bapat at Col. 26, Lines 55-57 and 60-63, by convention, the permissions tables use a special object name value, such as a database NULL value to represent "all objects". For a system with 5,000 managed

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objects, only one entry is required (Col. 27, Lines 30-36). GRANT TABLE: (U1, NULL, Op1). Thus, by using NULL variable, the *calculation expression* (U1, NULL, Op1) *can be evaluated based on a state variable of a database*, e.g., NULL indicates 5,000 records, and the number of record is the condition of database at that particular time, because the number of records in the database can be changed overtime, e.g., by deleting or inserting).

Regarding claims 15 and 42, Bapat and Elmasri, in combination, teach all of the claimed subject matter as discussed above with respect to claims 14 and 38, Bapat further discloses the step of *granting temporary or limited access to said at least one record to allow said evaluating of said calculation expression* (FIG. 15A).

Claims 43 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bapat et al. [USP 6,236,996 B1] in view of Glasser et al. USP 6,308,173 B1].

Regarding claim 43, Bapat teaches a database system comprising:
a database including a plurality of records stored therein (Col. 25, Lines 49-50 and 55-59);
a database program that can access said database and can be used as an interface to said database (Col. 7, Lines 45-67),
wherein said database program can be used to:
define a calculation expression for controlling access to said plurality records in said databases,
wherein said calculation expression is a variable expression defined based on a least one field of data used in a

plurality of records stored in said database (As shown in FIG. 14, tables 310 and 320 as in FIG. 11A are stored in a conventional DBMS 280 (Col. 25, lines 49-50). Rows 311, 312, 321, 322 of the tables 310, 320 contain management information for managed objects (Col. 25, lines 60-61). The FDN operates as the primary key to the data stored in the table and to determine which managed objects that a particular user is permitted to access or modify (Col. 19, lines 36-40). Access control for a particular user on a particular managed object is defined by a permissions table as shown below (Col. 26, lines 10-12).

Granted Permissions Table for Table 1

1502	User Name	Object Name	Operation Type	1
	user_x	object_xyz	SELECT	
	user_x	object_qrs	UPDATE	
	user_y	object_xyz	SELECT	
	user_y	object_abc	DELETE	
	user_z	object_def	SELECT	
1510	group_a	object_hij	SELECT	
	group_z	object_jkl	SELECT	

A permission entry 1502 is tuple having three fields, user name, object name, and operation type. The object name, preferably, is the FDN or Full Distinguish Name for a managed object (Col. 26, Lines 28-33). Referring to FIG. 11A as shown below, each row in the database tables includes a field called the Fully Distinguished Name or FDN of a managed object followed by columns of data. For example, an FDN can look like /systemid="sys1"/owner="accompany"/devicetype="router" (Col. 19, Lines 24-35).

Row			
FDN	Data 1	...	Data N

As seen, each row of the Granted Permissions Table is defined by a meaningful combination of variable characters or *variable expression* to specify a record access right for a user, wherein each row in the Granted Permissions explicitly defines an access right of a user to a record in the database with its Fully Distinguished Name as a key is equal to the specified Fully Distinguished Name in the Granted Permissions Table. For example, based on the first row of the Granted Permissions Table, a User Name = user_x has Operation Type = delete on any record that has Object Name = object_xyz. Thus, each row expression in the Granted Permissions Table is a *calculation expression* with a plurality of implied EQUAL OPERATOR, and is evaluated by the FDN field of the record to determine the access right) and

calculation can be evaluated at least partly based on said at least one field (Col. 28, Lines 1-3, the Grant table is checked to see if user has specific granted items, e.g., FDN, and as discussed above, FDN is *at least one field of data used in said plurality of records* of FIG. 11A),

wherein said at least one field of data is a variable which may have different values for each of said plurality of records (FIG. 10, tables 310 and 320, FDN field is *a variable which may have different values for each of said plurality of records*),

thereby allowing access to said plurality of records to be selectively determined based on said calculation expression (Col. 20, Lines 7-32, SELECT*, FROM view_table1_max WHERE FDN = "a/b/c", by using SELECT*, if FDN is matched with FDN in Grant table, the other fields as in tables 310 and 320 will be accessed, wherein the record is selectively controlled by FDN) and

wherein said database program is further capable of:

receiving a request to perform at least one operation on said plurality of records in said database (Col. 20, Lines 23-31);

evaluating said calculation expression for each of said plurality of records, wherein said evaluation returns only one of two possible values for each of said plurality of records, one of said possible values indicating that said at least one operation should be granted and another one of said possible values indicating that said at least one operation should be denied (Col. 27, Line 45-Col. 28, Line 26);

wherein said evaluating comprise determining at least one value for said at least one field of data and using at least one value as input to said calculation expression (An SQL command is used to access management information in DBMS (Col. 25, Line 66-Col. 26, Lines 3). SQL is in the form SELECT FROM WHERE. WHERE clause is to specify a value of FDN (Col. 20, Lines 28-32), wherein FDN is used as the key that determines which managed objects the user is permitted to access (Col. 19, Lines 35-40). The Grant table is check to see if user has specific granted items and grant access if matching (Col. 28, Lines 1-3). As seen, FDN value in SQL command as at least one value for said at least one field of data is determined in SQL command, and FDN value is used as input to compare with a particular row that has the same FDN value. In short, the technique of comparing FDN in SQL command with FDN in Grant table indicates the step using said at least one value as input to said calculation expression);

granting said at least one operation to be performed when said evaluation returns one said possible value to indicate that said at least one operation should be granted (Col. 28, Lines 1-3);
and

denying said at least one operation to be performed when said evaluation returns one said another possible value to indicate that said at least one operation should be denied (Col. 28, Lines 4-10).

Bapat does not explicitly teach *Graphical User Interface* is included to define expression.

However, as disclosed by Bapat, the system administrator 302 creates the permissions tables prior to use of the DBMS 280 by end users. The system administrator 302 invokes a call 440 to the *Create_Permissions_Tables* 442 procedure of the DBMS 280 (Bapat, Col. 26, lines 18-27). As seen, in order to create the permission table by the *Create_Permissions_Tables* procedure, obviously, a *Graphical User Interface* has to be used to enter the user name, FDN and access control code as discussed above. Glasser teaches a Graphical User Interface for defining access control expression (Glasser, FIG. 6B).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to include a Graphical User Interface as taught by Glasser in order to have a friendly system to define access right for a user.

Regarding claim 45, Bapat and Glasser, in combination, teach all of the claimed subject matter as discussed above with respect to claim 43, Bapat further discloses *at least one operation can be a browse, an edit, or a delete operation* (FIG. 15A and B).

Regarding claim 46, Bapat and Glasser, in combination, teach all of the claimed subject matter as discussed above with respect to claim 43, Bapat further discloses *calculation expression is not explicitly defined for said at least one operation but said calculation expression is one that has been defined for another operation which has been considered as a related operation to said at least one operation* (FIG. 15A).


Regarding claim 47, Bapat and Glasser, in combination, teach all of the claimed subject matter as discussed above with respect to claim 43, Bapat further discloses *said calculation expression can be evaluated at least partly based on at least one state variable of said database* (Col. 26, lines 28-33).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q. PHAM whose telephone number is 571-272-4040. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JEFFREY A. GAFFIN can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


HUNG Q PHAM
Examiner
Art Unit 2168

December 1, 2005